

Remarks

Applicant appreciates the Examiner's indication that claims 8 and 15 are directed to allowable subject matter. Further, in the final Office Action, the Examiner rejected claims 1-5 and 12 under 35 U.S.C. § 102(e) based on U.S. Patent No. 6,781,992 to Rana et al. ("Rana"); rejected claims 18-24 and 26 under 35 U.S.C. § 102(e) based on U.S. Patent No. 6,832,261 to Westbrook et al. ("Westbrook"); rejected claims 6, 7, 9-11, 13, 14, 16, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Rana in view of U.S. Patent No. 6,026,477 to Kyker et al. ("Kyker"); and rejected claim 25 under 35 U.S.C. § 103(a) as being unpatentable over Westbrook in view of Kyker.

By this Amendment, Applicant proposes amending claims 1, 7, 9, 12, 14, 16, 18, 23, and 24 and canceling claims 6, 8, 13, 15, and 26 without prejudice or disclaimer. More specifically, Applicant proposes amending claims 1 and 12 to substantially incorporate the features of the now-canceled claims 6 and 8 (claim 1) or claims 13 and 15 (claim 12). Claims 7, 9, 14, and 16 are proposed to be amended to correct their dependency in view of the cancellation of claims 6 or 13. Additionally, Applicant proposes amending claims 18, 23, and 24 to improve form.

Upon entry of this After Final Amendment, claims 1-5, 7, 9-12, 14, and 16-25 would be pending.

In view of the proposed amendments to claims 1 and 12, Applicant submits that the rejections of these claims based on prior art are obviated, as these claims now each recite features that the Examiner indicated are allowable over the prior art

of record. By virtue of its cancellation, the rejection of claim 26 under 35 U.S.C. § 102(e) is also obviated.

Rejection of Claims 18-24 Under 35 U.S.C. § 102(e)

Claims 18-24 stand rejected under 35 U.S.C. § 102(e) based on Westbrook. For at least the following reasons, Applicant respectfully traverses these rejections.

Independent claim 18, as amended, is directed to a network device comprising a data transmission component and a plurality of processing elements connected by the data transmission component, the processing elements communicating with one another by transmitting data items over the data transmission component. The processing elements each includes a reorder component configured to arrange received data items into an order corresponding to an order in which the data items were transmitted. Each of the reorder components includes a reorder buffer configured to store the data items, each of the data items including a sequence number chosen from a sequence number space, the sequence number indicating the order of the data items. Each of the reorder components also includes a reorder engine configured to classify the data items into one of three possible regions based on the sequence number of the data items and based on a position of the reorder buffer relative to the sequence number space, the reorder engine determining whether to store the data items in the reorder buffer based on the classification of the data items.

Westbrook is directed to distributed resequencing and reassembly of subdivided packets. (Westbrook, Title). Westbrook discloses the distributed

reassembly of large packets split into smaller packets with each packet marked with a sequence number, timestamp, or other order and reassembly indications.

(Westbrook, Abstract). Westbrook, however, does not disclose or suggest each of the features recited in claim 18.

Westbrook, for example, does not disclose or suggest the reorder components recited in claim 18, which are each recited as including a reorder buffer and a reorder engine, where the reorder engine is configured to classify the data items into one of three possible regions based on the sequence number of the data items and based on a position of the reorder buffer relative to the sequence number space, the reorder engine determining whether to store the data items in the reorder buffer based on the classification of the data items.

In rejecting claim 18, the Examiner states that Westbrook discloses that the reorder engine recited in claim 18 is disclosed by Westbrook at element 415, Fig. 4A; Fig. 8; and at column 13, line 53 through column 14, line 12. (Final Office Action, page 5). Figs. 4A (element 415) and Fig. 8 of Westbrook illustrate a queue manager. These figures in no way disclose or suggest the reorder engine recited in claim 18. Column 13, line 53 through column 14, line 12 of Westbrook states:

When all these sub-packets have been received by one or more of the distributed packet reassemblers, this information is communicated to the particular packet reassembler holding the head of the packet. The data structure is then forwarded over link 411 to the corresponding queue manager, such as queue manager 415, to store the information in a queue corresponding to the destination of the reassembled packet. The operation of one embodiment of queue manager 415 is further described in relation to FIG. 8. Queue manager 415 receives the description of the reassembled packet, temporarily stores it in the incoming buffer 802, and then stores it in queue memory 806 in a queue based on its destination (and possibly priority and/or class of service). At the appropriate time, as determined by control logic 808,

the queue manager extracts from one of its queues a data structure describing the corresponding reassembled packet to be send from the distributed resequencing and reassembly component 303B, and places it in outgoing buffer 804, which is then forwarded back to packet reassembler 410 over link 412.

Packet reassembler 410 receives a pointer to the data structure reflecting the reassembled packet from queue manager 415. The information in this data structure is forwarded to packet memory manager 420. Packets comprising the reassembled packet are placed on the packet merge bus 305B-E at the appropriate time to generated the reassembled packet out packet merge bus 305E.

This section of Westbrook describes the operation of queue manager 415 and packet reassembler 410 in reassembling a packet. This section of Westbrook, however, completely fails to disclose or suggest, as is recited in claim 18, classifying data items based on a sequence number of the data items into one of three possible regions. Further, these sections of Westbrook certainly do not disclose or suggest that the classifying is based on a position of the reorder buffer relative to the sequence number space, the reorder engine determining whether to store the data items in the reorder buffer based on the classification of the data items, as is also recited in claim 18.

In interpreting the above-quoted section of Westbrook, the Examiner states that "[t]he reassembled packet is stored in queue memory 806 based on its destination, priority and/or class of service." (Final Office Action, page 5). Applicant agrees with the Examiner in so much that Westbrook discloses storing a data structure "in a queue corresponding to the destination of the reassembled packet." (Westbrook, col. 13, lines 58-60). Storing a packet in a queue based on its destination, however, is not reasonably related to, as is recited in claim 18, classifying a data item into one of three possible regions based on the sequence

number of the data item and based on a position of the reorder buffer relative to the sequence number space. Westbrook completely fails to disclose or suggest any such classification. Further, Westbrook clearly does not then determine whether to store the data items in the reorder buffer based on the classification of the data items, as is also recited in claim 18.

Arguments similar to those made above were presented in the previous Amendment. In the "Response to Arguments" section of the Final Office Action, the Examiner essentially repeats the text given in the statement of the rejection given at pages 4 and 5 of the Final Office Action. (Final Office Action, pages 4-5 and 17-18). Applicant reiterates that Westbrook fails to disclose or suggest classifying a data item as recited in claim 18. The Examiner's allegations that the recitations of claim 18 are anticipated by Westbrook are simply unfounded.

For at least these reasons, Applicant submits that Westbrook does not disclose or suggest each of the features recited in claim 18, and therefore, the rejection of this claim should be withdrawn. The rejection of claims 19-24 based on Westbrook should also be withdrawn, at least by virtue of the dependency of these claims from claim 18.

Claims 19-24 recite features of their own that are not disclosed or suggested by Westbrook.

For example, claim 23 recites that the three possible regions include "a first region corresponding to the sequence number of the data item falling within a sequence number range covered by the reorder buffer, and a second region corresponding to the sequence number of the data item falling within a sequence

number range extending from the value stored in the reorder buffer pointer to a predetermined range beyond the value stored in the reorder buffer pointer."

Westbrook does not disclose or suggest classifying data items using the first and second regions recited in claim 23. In rejecting claim 23, the Examiner points to different locations 443A and 443B within ring buffer 442 of Westbrook. Applicant submits that simply because Westbrook discloses the use of a ring buffer in no way discloses or suggests the features of claim 23 (and the claims from which it depends), which include classifying data units into the specific regions recited in claim 23. The mere disclosure of a ring buffer that includes a number of buckets in no way discloses or suggests classification into the regions specifically recited in claim 23. Accordingly, Westbrook also does not disclose or suggest the features of claim 23.

Arguments similar to those made above were presented in the previous Amendment. In the "Response to Arguments" section of the final Office Action, essentially repeats the text given in the statement of the rejection given at pages 6 and 7 of the Final Office Action. (Final Office Action, pages 6 and 7 and 18). Applicant reiterates that Westbrook fails to disclose or suggest the features of claim 23 and requests that if the Examiner continues to reject claim 23 that the Examiner address the above presented arguments relating to claim 23.

Rejection of Claim 25

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Westbrook in view of Kyker.

Claim 25 depends from claim 18. Applicant has reviewed Kyker and submits that Kyker does not cure the above-discussed deficiencies of Westbrook with regard to claim 18. Accordingly, the rejection of claim 25 is improper and should be withdrawn.

Conclusion

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-5, 7, 9-12, 14, and 16-25 in condition for allowance.

Applicant submits that the proposed amendments do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Finally, Applicant submits that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 CFR 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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